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REGULATION OF ALGORITHM-BASED PRICE CARTELS IN THE TAXI-ONLINE BUSINESS IN INDONESIA: *QUO VADIS?*

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ABSTRACT

Digital economy is developing rapidly worldwide. New digital opportunities create new business opportunities like online taxi. The existence of online taxi in Indonesia is unavoidable because the developing of digital economy. Online taxi, like Grabcar and Gocar is operated its business through digital platform, such androids application (smartphone application). It makes customer easier to order and the rate of online taxi is cheaper than conventional taxi rate. The competition conventional taxi and online taxi is unavoidable. From the demand (consumer) side taxi online conventional taxi is in the same relevant market. They compete each other very fierce. The market share and income conventional taxi supposed decreased. The taxi online supposed doing price cartel. The question is how to determine that online taxi is occuring price cartel. This paper will attempt to analyze and provide feasible solutions concerning the regulation of Algorithm-Based Price Cartels in the Taxi-Online Business in Indonesia.

Keywords: *competition law, online taxi business in Indonesia, algorithm-based price cartel.*

INTRODUCTION

Currently, the conventional and online taxis have become the backbone of public transportation in Indonesia, especially in a metropolitan city like Jakarta.[1] Since the birth

My completion of this article could not have been accoplished without the support of Dr. iur. Dian Parluhutan. Thank you for your contribution and thoughts.

[1] Conventional taxis refers to a vehicle with a driver available for hire to the general public i.e. vehicle s that are smaller than buses and coaches and registered for a maximum of nine persons. This taxis is fully financed by users fee and operate flexibly and can instantly meet the new demand. Federal Ministry for Economic Cooperation and Development, Taxis as a Part of Public Transport (GIZ and SUTP), p. 10

of digital economy in Indonesia, the online taxi has been gradually become the favourite mode of transportation for the majority of people in Indonesia.[2]

According to the Organization of Economic Cooperation and Developments (OECD), the term digital economy refers to a following concept:

"The digital-economy is comprised of markets based on digital technologies that facilitate the trade of goods and services through e-commerce. The expansion of the digital sector has been a key driver of economic growth in recent years, and the shift towards a digital world has had effects on society that extend far beyond the digital technology context alone. The digital-economy is an umbrella term used to describe markets that focus on digital technologies. These typically involve the trade of information goods or services through electronic commerce. It operates on a layered basis, with separate segments for data transportation and applications. Conventionally, data transportation was considered to be a natural monopoly, while applications were assumed to be a very competitive segment." [3]

In Indonesia, the digital economy activities have been developed gradually into 'a transition into a smart based industrial system or known as Industry 4.0'. Industry 4.0 refers to

the comprehensive transformations from whole of production aspects in industry through a combination of digital technology and internet with the conventional industry. Industry 4.0 emphasizes the definition on a velocity element of information, namely an industrial environment whereby the whole entities are connected and can share information with each other.[4] Industry 4.0 is the fourth industrial revolution after the mechanization era, whereby the division of jobs, functions and automatization of works are becoming the key elements.[5] Subsequently, this novel industry has covered almost whole aspects of human life, as illustrated in the following chart:[6]

Whereby the online taxis refers to the Transportation Network Companies (TNCs), which:
"provide prearranged transportation services for compensation using an online-enabled application or platform (such as smart phone apps) to connect drivers using their personal vehicles with passengers." See California Public Utilities Commission, http://www.cpuc.ca.gov/General.aspx?id=787,accessed on 14.09.2018

[2] F. Nurhidayah and F. Alkarim, „Domination of Transportation Network Companies (TNCs) in Indonesia: An Indonesian Case", International Journal of Business, Economics and Law, Vol. 12, Issue 3 (April), p. 12

[3] OECD Secretariat, "Hearings: The Digital Economy" (Paris, DAF/COMP(2012)22), http://www.oecd.org/daf/competition/The-Digital-Economy-2012.pdf, accessed on 14.09.2018

[4] H. Prasetyo and W. Sutopo, „ Industri 4.0: Telaah Klasifikasi Aspek dan Arah Perkembangan Riset" Jurnal Teknik Industri, Vol. 13, No. 1, Januari 2018, p. 2-3.

[5] I-Scoop, "Industry 4.0: the fourth industrial revolution – guide to Industrie 4.0", https://www.i-scoop.eu/industry-4-0/, accessed on 14.09.2018

[6]Widyanita, „Potensi Ekonomi Digital Indonesia"18 November 2016, https://katadata.co.id/infografik/2016/11/18/potensi-ekonomi-digital-indonesia, accessed on 12.09.2018

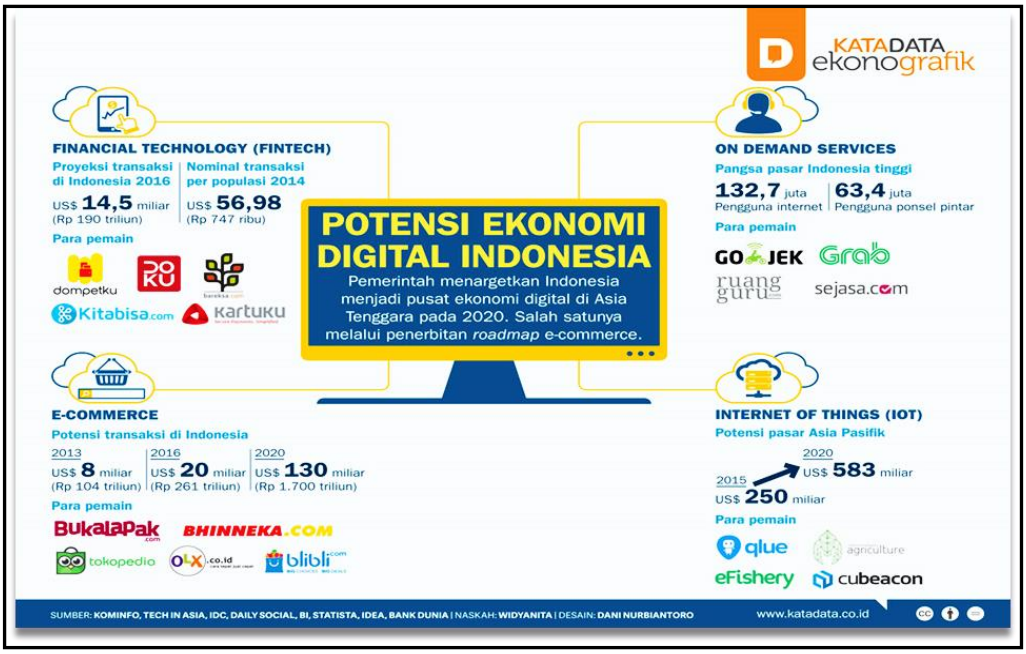

Figure 1. Potentials of Digital Economy in Indonesia

Nevertheless, the emergence of online taxi has caused increasingly fierce competition with the conventional taxi in the public transportation market. Due to quite homogenous product of service offered, the fierce competition abovementioned focus on the fare prices.[7] As regards the conventional taxi, there are different price fixing schemes in each of the province. For example, in DKI Jakarta there are a ceiling price (batas atas) and base point price (batas bawah). Further, the Provincial Government (PEMDA) will fix the ceiling price, whereas the Taxi Association (ORGANDA) will fix the base point price.[8]

The operation of taxi online in Indonesia is subject to the Ministry of Transportation Regulation Number 108/2017 on Non-route Passenger Transportation Services **("Permen No. 108/ 2017").** This Ministerial Regulation revised again through Ministerial Regulation No. 118 of 2018 on Operation of Special Lease Transport **(„Permen No. 118/2018").** According to Article 22 paragraph (1) Permen No. 118/2018 on online taxi price determined by Minister or Governor based on the ceiling price and base point price. The price of online taxi should be in the range of base point price and ceiling price. Nonetheless, *de facto*, the fare prices are fixed by the online taxis operator by means of their Algorithm respectively in which the price could be higher than the price determined by the Minister or Governor.

[7] KPPU, Artikel Kajian Persaingan Taxi di Indonesia, http://www.kppu.go.id/id/blog/2010/07/kebijakan-persaingan-dalam-industri-taxi-di-indonesia/, accessed on 14.09.2018.
[8] Ibid.

Accordingly, this paper attempts to analyze and provide feasible solutions concerning the regulation of Algorithm-Based Price Cartels in the Taxi-Online Business in Indonesia in the light of achieving the ASEAN Competition policy pursuant to Article 1 number 5 of ASEAN Charter. Accordingly, this paper is structured in five parts. First, the backgrounds leading to research problems are exposed. Second, the main features of taxi online business are described, encompassing the specialty of taxi online business and business model thereof and as well the legal status of taxi-online pursuant to the Indonesian law. Fourth, the competition analysis of algorithm-based pricing cartels in the online taxi business. Fifth, the feasible recommendations and conclusions thereof.

I. ONLINE TAXI BUSINESS

A. Grab and Go-Car as the Prominent Online Taxi Operators

Go-Jek, as the largest online taxi operator, was founded in Jakarta in 2010 and has the headquarter located in Jakarta, Indonesia.[9] Subsequently, Grab was founded in Singapore and quickly has expanded to operate in almost of the South East Asian countries.[10] Similar to the previously online taxi companies, Grab and Go-Jek offer wide variant of taxi services.[11]

According to the terms of condition agreement of Uber, the online taxi business provides:

"a technology platform that enables users of Grab's mobile applications or websites provided as part of the Services to arrange and schedule transportation and/or logistics services with third party providers of such services…" The customer registers for a user account with Grab and payment of the services is made through Grab to the third party providing the services. (Terms & Conditions, nos. 3, 4, para. 1.) Every user of the services has the opportunity to rate the experience and leave additional feedback. (Id. no. 4, para. 4.)[12]

According to OECD's legal opinion, the operation of Grab largely corresponds to the current prevailing concepts of so-called "the disruptive innovation" and "the sharing economy".[13] As regards Grab, the concept of disruptive innovation plays a considerable significance.[14]

[9] Go-Jek, https://www.go-jek.com/about/, accessed on 16.09.2018
[10] See https://www.grab.com/my/about/, accessed on 16. 09.2018
[11] L. Cosseboom, " GrabTaxi's journey to a billion-dollar startup", https://www.techinasia.com/history-unicorn-grabtaxi-infographic, accessed on 16.09.2018
[12] Uber B.V, Persyaratan dan Ketentuan (4. Desember 2017), accessed on 12.09.2018
[13] The Organisation for Economic Co-operation and Development (OECD), Hearing on Disruptive Innovation, Issues paper by the Secretariat -- 16-18 June 2015, p. 5-8.
[14] *Ibid.*

B. Business Model

Principally, Grab deploy a generic business model by utilizing the multi-sided market economy platform, whereas Grab business model can be schematized as follows:

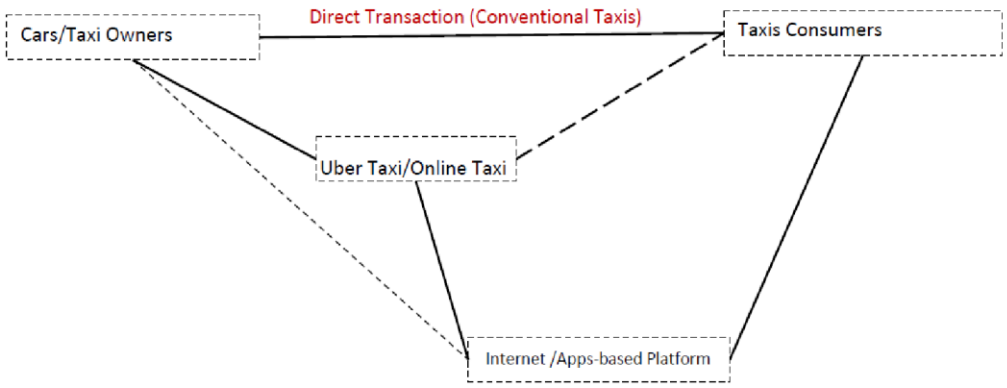

Figure 2. Business Model of the Conventional and Online Taxis in Indonesia

Therefore, Grab's business model can be explained in the following sequence of analysis, which are: *Firstly*, Uber taxi services are deployed through an apps-based mobile/smart phones. Generally, Uber gives smartphones installed with Grab apps to its drivers. *Secondly*, Uber concludes contracts with a number of car drivers to provide taxi or transportation services for customers, which use the Uber apps. Furthermore, the contracts require that the Uber drivers are prohibited to charge or receive any payments by other means than the Uber apps. *Thirdly*, Uber stipulate a fixed price, covering the fare rates and surge pricing, for the customers to ride from point A to point B (aimed destination), whereas this price is formed by means of Uber algorithms. Subsequently, Uber subtracts approximately 20 per cent from a payment received and thus give the payment to the drivers.[15]

In contrast to the conventional taxi services, Grab provides several particular advantages for its users, which are: First, knowing your ride is coming. The apps let you see the location of available cars on a map, relative to your own location. Second, the ease of payment. Passengers can pay without getting out their wallet —just get in and get out, the fee is automatically and charged to the credit card, and a receipt is e-mailed to you. There is no struggle to get a driver to accept a credit card. Third, the rating and feedback. Fourth, the surge pricing. Surge pricing is the Grab innovation, where the price varies according to demand. When there is a shortage of Grab vehicles to answer calls (a "surge" in demand) the price rises.[16]

[15] Fischer, et.al, "Biz Model for Uber Technologies Inc."(13th April, 2015), accessed on 14.09.2018, p. 4-12
[16] *Ibid*, p. 12-16.

Likewise, *Edelman and Geradin* emphasize that [17], in contrast to the conventional taxi services, Uber provides several plus points to customers, namely: First, the reduction of transaction costs both for taxi operators and consumers.[18] Second, the improvement of allocation of resources.[19] Third, the considerable improvement of efficiency, reputation and accountability.[20]

C. Legal Basis of Online Taxi

On the one hand, the United States (US) jurisdiction, taxi online has been legally considered as the so-called "Transportation Network Companies (TNCs)". whereas according to *Nurhidayah and Alkarim*:

"have certainly appeared to refer to ridesharing companies, or ride-hailing services, for those firms that provide prearranged online transportation services to bridge between drivers, who are using their personal vehicles with passengers."[21]

On the other hand, the California Public Utilities Commission (CPUC), defining the transportation network companies (TNCs) as companies that "provide prearranged transportation services for compensation using an online-enabled application or platform

[17] B.G. Edelman and D. Geradin, "Efficiencies and Regulatory Shortcuts: How Should We Regulate Companies like Airbnb and Uber?" Stanford Technology Law Review 19 (2016): 293-328, p. 3-8.
[18] App-based software platforms lower the cost of finding a suitable match to complete the transaction. Specifically, platforms remove the cost of dispatchers and eliminate specialised equipment such as purpose-built radios, taximeters and credit card and credit card processors as the services provided by these can be provided via mass-produced smartphones and by centralised servers. By lowering communication costs, platforms allow more useful information to be communicated to consumers and to drivers. App-based platforms can show a driver's face, vehicle, and license plate to a passenger, and the passenger's photo to a driver, helping both parties to recognise each other. Where a taxi passenger concerned by a delayed vehicle might have called a phone dispatcher to inquire and receive potentially inaccurate information about vehicle location, app-based platforms provide continuous real-time localization updates, reducing the uncertainty and anxiety associated with waiting for a taxi. Ibid, p.3-7
[19] Software platforms also improve allocative efficiency. They enable, for instance, greater useful work by vehicles over the course of the day by better matching supply and demand. They thus promote the efficient use of resources by assuring that expensive assets remain active. Improved allocative efficiency is not just the domain of CTAs. Taxis that employ app-based platforms also achieve better allocative efficiency. What matters is the algorithmic skill in matching real-time requests for rides with available drivers alongside scale effects. A recent study found that for selected US cities, CTA drivers (therefore using app-based platforms) spent a significantly greater share of their time with passengers on board than do taxi drivers in the same markets. The same holds true for distance driven. Better algorithms, greater scale effects, inefficient regulations hampering taxis and more flexible labour supply were all cited as factors explaining CTA's greater occupancy performance (Cramer & Krueger, 2016). A separate source of allocative efficiency comes from putting the same vehicle to multiple uses. A driver can use a vehicle for personal obligations at some times of day, then for business at other times. CTA business models that encourage part-time drivers to log on during periods of peak demand improve this aspect of allocative efficiency. Relatedly, drivers avoid a commute, by personal vehicle or public transit, to pick up a dedicated vehicle from a depot. Instead, a driver can begin service from home or any other location. This reduces commuting time and costs for the driver, increases service availability to customers, and might lessen congestion. .G. Edelman and D. Geradin, Op.Cit, p. 4-et.seq.
[20] Information efficiencies help make the improved allocation decisions outlined above, as well as uncovering and discouraging unwanted participants and behaviour. In the case of for-hire services, a first type of information efficiency comes from dispatching the optimal vehicle. G. Edelman and D. Geradin, Op.Cit, p.4-et.seq.
[21] F. Nurhidayah and F. Alkarim, „Domination of Transportation Network Companies (TNCs) in Indonesia", p. 11.

(such as smart phone apps) to connect drivers using their personal vehicles with passengers."[22]

In the European Union (EU) the regulation of online taxis focuses around two main questions, namely whether the online taxi could be classified as a merely digital service provider (information society service) or factually as a transport operator. Whereas the first category benefits from the freedom of establishment for service providers and the free movement of services under the EU Directive 2006/123/EC on Service Directive, the latter one is the latter is subject to strict requirements pursuant to the respective regulation of the EU Member States.[23]

In the European Competition law praxis, the Spanish Court of Justice has lodged a petition for a preliminary ruling to the European Court of Justice concerning the regulatory status of Uber.[24] Whereas the final decision has been pending, four main legal issues have been inquired before the Court of Justice of the European Union, which are: *First*, if the services Uber provides can be qualified as merely a transport service or if it must be considered to be an electronic intermediary service or an information society service? *Second,* if Uber's services can be qualified as "information society services," should it benefit from the freedom to provide services guaranteed by Article 56 TFEU and the Services Directive 2006/123/EC and the E-Commerce Directive 2000/31/EC? *Third,* is Uber's alleged breach of Spain's unfair competition law contrary to Article 9 of the Services Directive, which governs "authorization schemes" and which states that an authorization, licensing or permits regime cannot be restrictive or disproportionate, and cannot unreasonably hinder the principle of freedom of establishment? *Fourth*, if Uber is to be considered as an information society service, are the restrictions Spain is currently imposing on Uber allowed, taking into account the freedom to provide information society services expressed by Article 3 of the E-Commerce Directive?

Equally important, in Germany, several civil courts proceedings have been initiated due to lawsuits, which based upon allegations asserting, *inter alia*, that Grab, notably its business model, has infringed the German Competition Law (*Gesetz gegen Wettbewebsbeschränkung-GWB*).[25] In addition to that, several administrative proceedings are ongoing as well, whereas the applicants argued that Grab services are not permissible pursuant to the provisions of the German Passenger Transport Act.[26]

Legally online taxi in Indonesia is acknowledged by the Government of Republic of Indonesia through in eacting Ministerial Regulation of the Ministry of Transportation

[22] J. Gesley, "Legal Challenges for Uber in the European Union and in Germany", 14 March , 2016, https://blogs.loc.gov/law/2016/03/legal-challenges-for-uber-in-the-european-union-and-in-germany/, accessed on 12.09.2018

[23] *Ibid.*

[24] Court of Justice of the European Union (CJEU), Case Case C-434/15 "Request for a preliminary ruling from the Juzgado Mercantil No 3 de Barcelona (Spain) lodged on 7 August 2015 — Asociación Profesional Élite Taxi v Uber Systems Spain, S.L." Cf. J. Gesley, "Legal Challenges for Uber"

[25] *Bundesministerium der Justiz und Verbraucherschutz, German Act against Restraints of Competition (Gesetz gegen Wettbewerbsbeschränkungen*), accessed on 14.09.2018

[26] *"Personenbeförderungsgesetz in der Fassung der Bekanntmachung vom 8. August 1990 (BGBl. I S. 1690), das zuletzt durch Artikel 2 Absatz 14 des Gesetzes vom 20. Juli 2017 (BGBl. I S. 2808) geändert worden ist",* accessed on 14.09.2018.

No. 16 of 2016 regarding Non-route Passenger Transportation Services. This Ministerial Regulation is revised twice by the Transportation Ministry with Ministerial Regulation No. 26 of 2017 because some of its provision revoked by Supreme Court especially regarding tariff determination by the government. Then, the Ministry of Transportation revised the Ministerial Regulation No. 26 of 2017 with the Permen No. 108/2017. This Ministerial Regulation revised again through the Permen No. 118/2018. Operation of special lease transport called online taxi is defined as following, "Special leased transportation is a door-to-door transport service with drivers, has operating areas in urban areas, from and to airports, ports or other transportation nodes and reservations using information technology-based applications, with the tariff rates listed in the application".[27]

According to Article 12 paragraph (1) of the Permen No. 118/2018 the online taxi must be conducted by a company[28] in the form of a legal entity. The legal entity is in a form of:[29] a. State own enterprises; b. Regional own enterprises; c. Limited Liability Company; and d. Cooperative. In addition to the legal entity above, organizers of Special Lease Transportation may be carried out by micro businesses or small business actors in accordance with applicable laws.

Meaning that that taxi driver as individual can not to be a partner of apps provider. In fact most of the partner of apps provider is individuals. The possibility of individual/taxi driver to be online taxi services is to joint himself with a cooperative or some of them may establish a cooperative.[30] To establish cooperative is easier than to establish limited liability company. The cooperative must have the following requirements:[31] a. Has minimum 5 (five) cars that has a certificate of motor vehicle number in the name of company and passed regular motor vehicle test; b. Has a storage of motor vehicle; c. has a workshop that can provide vehicle maintenance or cooperation with others; and d. employ drivers who has driving license which is not the case in online taxi. After getting the license of cooperative, cooperative may have to establish cooperation with app servce provider to conduct online taxi based on the platform. The application-based public transportation service is aimed at simplifying the ordering process.[32] Then, this service can be performed independently by the licensed public transportation company or through collaboration with a third party (an information technology based application service provider in the form of an Indonesian legal entity).[33] However, a transportation app service provider is **not** allowed to provide public transportation, [34] unless it has obtained the necessary license and fulfilled the

[27] Article 1 number 7of Ministerial Regulation No. 118 of 2018
[28] A company according to Article 1Number 8 of Ministerial Regulation No. 118 of 2018 is a special lease transport company that defined as follows; "Special Leased Transportation Company is a legal entity or micro business actor or small business actor that provides Special Lease Transportation services"
[29] Article 12 paragraph (2) of Ministerial Regulation No. 118 of 2018
[30] See Udin Silalahi, Competition Policy on Online Taxi in Indonesia, Jurnal Hukum dan Pembangunan 49 No. 1 (2019), p. 107
[31] Article 38 of Ministerial Regulation No. 108 of 2017
[32] Article 63 paragraph (1) of Ministerial Regulation No. 108 of 2017
[33] Article 63 paragraph (2) and Article 33 paragraph (1) of Ministerial Regulation No. 108 of 2017
[34] Article 65 paragraph (2) of Ministerial Regulation No. 108 of 2017

requirements to be treated as a company licensed to provide public transportation services.[35] Only such a company is allowed to determine and collect fares from passengers, hire drivers, and determine the salary of drivers.

II. COMPETITION LAW ANALYSIS OF ALGORITHM-BASED PRICING CARTEL

A. Hub and Spoke Cartels *(Sternvertrag)*

Operationally, Grab and Go Car conclude a contractual agreement with their drivers, stipulating the terms and conditions for both parties. Accordingly, the online taxi operator will thus determine and set the fare prices for the drivers, to be charged to a passenger. In addition, the drivers are not able to set the prices freely to their passenger (consumer).

Hence, within such a business configuration, *Nowag* argues that the online taxi operators basically operate the algorithm-based price fixing (pricing cartels).[36] In a parallel manner, *Ezrachi et.al* argues, as to the algorithmic-based price fixing, there would be 4 (four) possible scenarios for a collusive agreement. First, 'Messenger'. Second, 'Hub and Spoke' Third, 'Predictable Agent. Fourth, 'Autonomous Machine'.[37] These collusive scenarios can be portrayed in the following table:

	Agreement	Intent	Liability
Category 1: *Messenger*	Strong evidence	Limited role	Per Se Illegal
Category 2: *Hub & Spoke*	Mixed evidence	Evidence used to clarify purpose and likely effect	Per Se / Rule of Reason
Category 3: *Predictable Agent*	No evidence	Evidence used to show motive and awareness in facilitating tacit collusion	Maybe under FTC Act § 5 or Article 102
Category 4: *Autonomous Machine*	No evidence	No evidence	Unclear

Figure 3. Four Feasible Scenarios of Algorithmic Price Collusion

Subsequently, according to Nowag, in such a configuration in which Grab and Go Car coordinate their respective prices through an algorithm, these online taxi operators can be deemed to commit a 'Hub and Spoke cartel'.[38] Furthermore, out of these 4 (four) scenarios, *Ezrachi* confirms also that the 'Hub and Spoke' cartel is the most possible collusive agreement by means of an algorithm.[39]

[35] Article 66 of Ministerial Regulation No. 108 of 2017
[36] J. Nowag, "UBER between Labour and Competition Law", Vol 3 LSEU (2016),, pp 95-104
[37] A. Ezrachi and M.E. Stucke, "Artificial Intelligence & Collusion: When Computers Inhibit Competition", University of Illinois Law Review (Vol. 2017, Number 5), p. 1776-*et.seq*.
[38] J. Nowag, Op.Cit, p. 95-100.
[39] A. Ezrachi and M.E. Stucke, Op.Cit., p.1778-et.seq

According to *Odudu*, 'Hub and spoke cartels' refers to the following:[40]

"concerns the use of a single algorithm to determine the market price charged by numerous users. In this scenario, a single vertical agreement by itself may not necessarily generate anticompetitive effects and does not necessarily reflect an attempt to distort market prices"

Odudu assumes that 3 (three) factors play a key role in a 'Hub and Spoke' cartel. First, achieving market coordination between undertakings in order to: (a) identify a mutually beneficial strategy, (b) detect deviation from that strategy, (c) apply pressure to prevent deviation from the mutually beneficial strategy. Second, achieving market related information disclosure enabling the undertakings to achieve first element of a coordinated market response-identifying a mutually beneficial strategy. Third, achieving a second element of a coordinated market response by means of detecting deviation from the mutually beneficial strategy between undertakings.[41]

Moreover, according to *Krebs and Becker*, the hub and spoke cartels (*Sternvertrag*) refers to practices which have the object or effect to collude on prices and other competition parameters which involves triangle relationships between suppliers, wholesale trader and retail trader. Thereby, there is no collusion on the horizontal level, however the collusive agreement between the undertakings take place indirectly through suppliers. A primary trait of the hub-and spoke cartels is the disclosure of terms of trade or contracts through suppliers for the other traders, information exchanges on prices and advertising strategy.[42]

Further, *Lorenz* depicts 'Hub and Spoke' cartel as a so-called 'Triangular cartels', stipulating:

"Article 101 (1) may be infringed not only by an explicit agreement to fix prices, but also by an informal concertation between supplier. This may for example occur when information, on the dates and amounts of price increases, is circulated among competitors through a third party. In a 'Hub and Spoke' cartel, a Supplier acts as a 'Hub' by collating and distributing sensitive information from its Distributors about an intended price increase, the Supplier pass on this information to other Distributors. This will reduce uncertainty over the pricing intentions of rival distributors. This type of behavior could be challenged by Competition Authorities, both as Resale Price Maintenance (Vertical Hardcore violation) and an indirect concerted practice between competitors (horizontal price and fixing cartels)." [43]

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[40] O. Odudu, "Hub and Spoke Collusion" in I. Lianos and D. Geradin, *Handbook on European Competition Law: Substantive Aspects* (Edward Elgar, Cambridge: 2013), p. 242-et.seq. Accordingly, according to Odudu:
"Taking into account that Uber deploy a price algorithm through its platform to fix prices and surge prices for the customers and its drivers, this arrangement is to be considered as a so-called 'hub and spoke cartels' (*Sternvertrag*). According to *Odudu*, the hub and spoke cartels constitute one of the most interesting and challenging competition law questions, whereas undertakings could receive information about their competitors, not directly from their competing undertakings but via the common trading partner."

[41] O. Odudu, Op.Cit, p. 244-et.seq

[42] Krebs and Becker, *Lexikon des Wettbewerbsrechts,* (CH Beck, München, 2015), p. 139

[43] M. Lorenz, "An Introduction to EU Competition Law" (Cambridge University Press, 2013),p. 50-et.seq

According to *Odudu,* 'hub and spoke cartels' can be depicted as follows:[44]

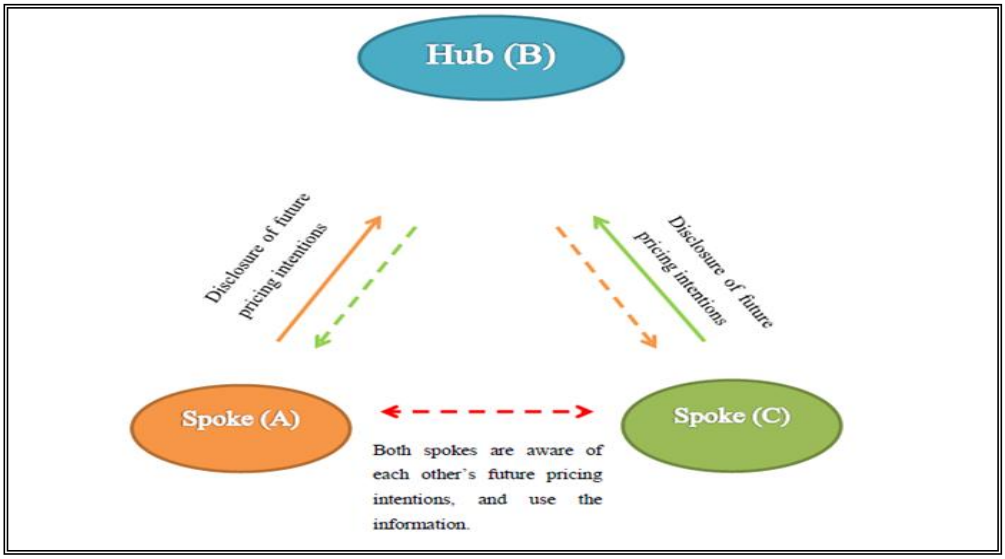

Figure 4. Conceivable Schemes of 'Hub and Spoke Collusions'

As regard the antitrust violation, in the 'Hub and Spoke' cartel configuration, the online taxi operators act as the "Hub", whereby the drivers act as the "Spokes". According to *Nowag*, in the 'Hub and Spoke' cartel, the cartels members do not communicate directly to set prices. Instead of that, an intermediary, the online taxi operator organizes the cartels, although it does not actively involve in the cartelized online taxi market.[45]

In the European Competition law, such a 'Hub and Spoke' cartel was penalized hardly by the Court of Justice in the AC-Treuhand case. According to *Jones and Sufrin*, in *the AC Treuhand AG v. Commission*, the Court of Justice asserted that Article 101 (1) TFEU bans and penalizes also agreements between undertakings, even when the purpose of the agreement is to restrict competition on a market on which one of the undertaking is not active.[46] Accordingly, the Court of Justice confirmed a consultancy firm could infringe Article 101 (1) TFEU where it actively contributed to the implementation and continuation of a cartels among producers operating on a market (for example, through organizing meetings, collecting and supplying data and moderating disputes between cartels members, even if it does not itself operated on the cartelized market. Thus, the Court of Justice reconfirmed that Article 101 (1) TFEU may also apply to intermediaries assisting or facilitating the functioning of a cartel.[47] Furthermore, in the *Apple E-Books* case, the EU Commission argued that Apple and its five publishers committed concerted

[44] O. Odudu, Op.Cit, p. 245-et.seq
[45] M. Lorenz, "An Introduction to EU Competition Law" (Cambridge University Press, 2013),p. 50-55.
[46] A. Jones and B. Sufrin, *EU Competition Law: Text, Cases, and Materials* 6th Edition, *(*Oxford University Press: 2016), p. 144-45.
[47] *Ibid*, p. 145-et.seq

practices in order to illegally raise the retail prices of e-Books in the European Economic Area, or to obstruct the emergence of lower retail prices for e-Books in the European Economic Area.[48]

In the US Antitrust practice, the US District Court of Southern New York found that Apple and five major book publishers carried out a 'Hub and Spoke' cartel. Respectively, the US District Court was of opinion that Apple and its publishers "conspired with each other to eliminate retail price competition and raise e-book prices, and that Apple played a central role in facilitating and executing that conspiracy."[49]

In the EU Competition law, such a 'Hub and Spoke' cartel is punishable and is subject to the nullity of the agreement at hand, pursuant to the provisions of Article 101 (1) TFEU and § 1 *Gesetz gegen Wettbewerbsbeschränkungen* (GWB- German Act against Restraints of Competition)[50]. In operational level, the EU Commission Guidelines on Vertical Restraint reiterates that a 'Hub and Spoke' agreement constitutes a violation against the EU Competition law:

"…agreements may facilitate collusion between distributors when the same supplier serves as a category captain for all or most of the competing distributors on a market and provides these distributors with a common point of reference for their marketing decisions."[51]

Accordingly, the Vertical Restraints Guidelines explains as follows:

"...may also facilitate collusion between suppliers through increased opportunities to exchange via retailers sensitive market information, such as for instance information related to future pricing, promotional plans or advertising campaigns."[52]

On the other hand, in the Indonesian Competition law, such a 'Hub and Spoke' cartel has not been prescribed in the Law Number 5/1999.

[48] European Commission, Competition DG, "Case Comp/At.39847-E-Books", http://ec.europa.eu/competition/antitrust/cases/dec_docs/39847/39847_26804_4.pdf, accessed on 12.09.2018. See J. Nowag, Op.Cit, p. 95-et.seq.

[49] In the Court's argument the Court was of the opinion that Apple organised the concerted practice by actively convincing the publishing houses to move from Amazon's wholesale model to an agency model. The agency agreement between Apple and the publishers contained a Most-Favoured-Nation clause, requiring the publishers to offer Apple lowest retail price being offered by competing retailers. How longer Amazon continued to sell at its low retail prices, how longer the publishers were required to offer the same prices to Apple, reducing their profit margin.For these reasons, the Court held that the MFN clause was a "severe financial penalty" which effectively forced the publishers to convert from the retail pricing competition to the agency model. European Commission, DG Compettiion, Op.Cit. 5-et.seq.

[50] Krebs and Becker, *Lexikon des Wettbewerbsrechts*, (CH Beck, München, 2015), p. 139

[51] European Commission, Commission Notice on Guidelines on Vertical Restraints, {C(2010) 2365} {SEC(2010) 413} {SEC(2010) 414}, Brussels, Para. 211

[52] Ibid, Para. 212

B. Regulation of Algorithm-based Price Cartel in Online Taxi Business in Indonesia?

De facto, the online taxis operate based on the dynamic algorithmic pricing, which would be based on tacit collusion, whereby the online taxi operators coordinate their prices (and/or any other variable) and jointly achieve supra-competitive profits, without the adoption of any institutional arrangement (a contract, a combination, an agreement, a joint venture, a trade association, etc.). This tacit collusion reduces the welfare of consumers or public in similar nature to those caused by cartels.[53]
Basically, dynamic algorithmic pricing works based on two price-setting methods: Firstly, clustering algorithms and Secondly, similarity clustering. The first method classifies the consumers based on their demographic features, such as age, sex and job types. The second method clusters the consumers based on demographic similarity. Furthermore, the online taxi platform utilizes the predicted variable or supervised learning method, as follows:

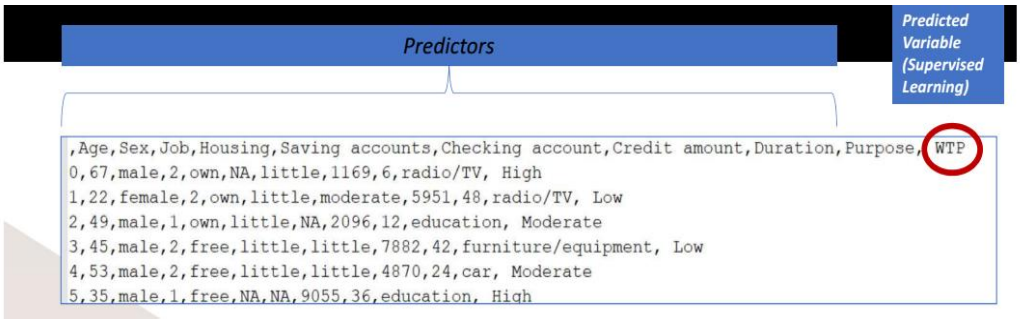

Figure 5. Algorithmic Price Setting through Predicted Variable (Supervised Learning)

From de jure perspective, the online taxi tariff is regulated in the Permen No. 118/2019 on Operation of Special Lease Transport. Special lease transportation tariff is the applicable tariff paid by the user to the service provider of the special lease transportation based on an agreement through the application of information technology based on the ceiling price and base point price[54] that determined by the Minister or Governor[55] that the amount based on the ceiling price and base point price.[56] Then the amount tariff that determined by the Minister can be used as a guideline for the Governor in determining the tariff for Special Lease Transportation[57] in certain area. The Guideline for calculating

[53] A. Ittoo and N. Petit, 'Algorithmic Pricing Agents and Tacit Collusion: A Technological Perspective (October 2, 2017)'. https://ssrn.com/abstract=3046405 accessed on 12.10.2019
[54] Article 1 Number 14 of Ministerial Regulation Number 118 of 2019
[55] Article 22 paragraph (2) Ministerial Regulation Number 118 of 2019 said that the amount of the lower limit tariff and the upper limit tariff for Special Leased Transportation shall be determined by the Minister or Governor in accordance with the operational area.
[56] Article 22 paragraph (1) of Ministerial Regulation No. 118 of 2018 said that the amount of the Special Lease Transport tariff that applies is at least as much as the base point price and the ceiling price.
[57] Article 22 paragraph (4) of Ministerial Regulation No. 118 of 2018.

direct and indirect costs are determined by the Minister.[58] The amount of the Special Lease Transport tariff shall be determined based on the calculation of direct and indirect costs.[59] From the described regulation above can be concluded that the base range price of online taxi tariff is determined by the government that should be followed by the apps provider. How much the amount of tariff that must be paid by user will be determined by apps provider and should be reported to the Ministry or Governor[60] and the amount of that tariff must be announced to the service user.[61]Currently in Jakarta, Bogor, Tangerang and Depok, for example the base point price is Rp.3500 per km and the ceiling price is Rp. 6500 per km. It means that the apps provider is prohibitted to fix the price lower than Rp. 3500 and higher than Rp. 6500.

There are presumably three provisions in the Indonesian Competition Law stipulating a collusive agreement in the online taxis, Article 5[62], Article 9[63] and Article 11 thereof. However, Article 11 of the Law Number 5/1999 is, at present, the most applicable to catch cartel practices occurring in the online taxi market. Article 11 prescribes:

"Business actors shall be prohibited from entering into agreements with their business competitors, with the intention of influencing prices by arranging the production and or marketing of certain goods and or services, which may cause monopolistic practices and or unfair business competition."[64]

Nevertheless, Article 11 must be applied in conjunctions with the KPPU (Indonesian Commission for Business Competition Supervision) Regulation Number 04 Year of 2010 concerning Cartel.[65] Article 11 can be applied to the "Hub and Spoke cartel", but the form of Hub and Spoke could not solely apply, because Article 11 covers horizontal agreement only. According to Nowag the online taxi operators basically operate the algorithm-based price fixing to the drivers[66] which is a vertical agreement. Then, the application of Article 11 could be applied along with Article 8 regarding resale price maintenance. Article 8 Law No. 5 of 1999 regulates that *"business actors shall be*

[58] Article 3 paragraph (4) of Ministerial Regulation No. 118 of 2018.
[59] Article 3 paragraph (2) of Ministerial Regulation No. 118 of 2018.
[60] Article 25 paragraph (1) of Ministerial Regulation No. 118 of 2018
[61] Article 25 paragraph (2) of Ministerial Regulation No. 118 of 2018
[62] Article 5 on Price Fixing stipulates:
(1) Business actors shall be prohibited from entering into agreements with their business competitors to fix the price of certain goods and or services which must be paid by consumers or customers in the same relevant market.
(2) The provisions intended in paragraph (1) shall not be applicable to the following: a. an agreement entered into in the context of a joint venture; or b. an agreement entered into based on prevailing laws.
Law Number 5 Year 1999 Concerning The Prohibition Of Monopolistic Practices And Unfair Business Competition, http://eng.kppu.go.id/newkppu/wp-content/uploads/2016/11/law_5_year_1999_.pdf, accessed on 07.09.2018
[63] Article 9 on Dividing Territories:
Business actors shall be prohibited from entering into agreements with their business competitors which have the purpose of dividing marketing territories or allocating the market for goods and or services, potentially causing monopolistic practices and or unfair business competition. Ibid.
[64] Cartel
Article 11
"Business actors shall be prohibited from entering into agreements with their business competitors, with the intention of influencing prices by arranging the production and or marketing of certain goods and or services, which may cause monopolistic practices and or unfair business competition." Ibid.
[65] See http://www.kppu.go.id/id/produk-hukum/peraturan-kppu/, accessed on 07.09.2018
[66] J. Nowag, Op. Cit., p. 915

prohibited from entering into agreements with other business actors setting forth the condition that parties receiving the goods and or services shall not sell or resupply the goods and or services received by them, at a price lower than the contracted price, potentially causing unfair business competition". The price agreement between online taxi operators and the drivers is conducted since the partnership agreement between online taxi operator and the drivers is signed by both of parties. Meaning that from that time on the driver online taxi could not reject or avoid the price that determined by taxi operator that to be charged to the customer which is cause a horizontal price fixing among the drivers. The hub (apps provider) organizes collusion downstream firms (the spokes) through vertical level. Can be said that the horizontal price fixing is conducted by the drivers through the algorithm-based price fixing which is covered by Article 11 of Law No. 5 of 1999. The question is how do we measure the role of spoke in determining the price fixing and what kind of evidence to be needed to proof whether hub and spoke cartel against Law No. 5 of 1999?

In the hub and spoke mechanism, the hub has more important role to facilitate and determine the information and the price that must be paid by the customer. The spoke (the driver) as amentioned above has no choice any more to avoid or to reject the information and the price that delivered and determined by the hub. Then, the evidence of agreement among the spokes is often found in vertical coordination between the hub and the spokes, not in horizontal coordination. The hub facilitates and enforces the collusion, or key aspects of the collusion, through its vertical relationships with the spokes, thereby reducing the need for horizontal coordination. The hub sets retail prices that must be paid by the customer while he or she orders online taxi. It could be covered by Article 8 as aboved mention. Law Number 5/1999 concerning cartels prohibition, also in the ongoing Amendment of the Law there is no definitive provisions regulating a 'Hub and Spoke' cartels.

KPPU as the Competition Authority (CA) in Indonesia is encouraged to do research the competition among online taxi operators in Indonesia and find out which one of taxi operators has dominant position and how they behave in the relevant market whether they collude or compete one each other. In which one of them has a dominant position that has higher market share, control data and information of customer and cooperation with other business actors as well. The result of research will be the first data to analysis the online taxi price cartel in Indonesia which one of two business actors, either Grab-car or Go-car, has a dominant position. In other words, the hub and spoke model business is subject to the Indonesian Competition law that should be supervised and investigated by KPPU.

CONCLUSION

This paper infers several conclusions and thus would suggest several recommendations for the regulation of online taxis in Indonesia, as follows:

First, the online taxis business has been resulting from the digital economy, which has following characteristics: First, an intensive innovation and tendency to make greater use of new sources of finance, e.g. venture capital. Second, an emphasis on the importance of intangible assets rather than (traditional) fixed assets e.g. patents, trademarks, copyrights, franchises, licenses, etc., in the value creation and of electronic services as final products. Third, the emergence of new business models based on network effects, user generated contents, collection and exploitation of personal data, etc. Fourth, a significant cross-border E-commerce including the delivery of traditional forms of commerce through new channels.

Second, as the offspring of digital economy and an example of disruptive innovation, the online taxis offer competitive advantages to their passengers (consumers), which are: First, knowing your ride is coming. The apps let you see the location of available cars on a map, relative to your own location. Second, the ease of payment by using Go-Pay or Grab-Pay. Passengers can pay without getting out their wallet —just get in and get out, the fee is automatically and charged to the online account (Autodebit) a receipt is e-mailed to you. There is no struggle to get a driver to accept such a digital payment. Third, the rating and feedback. Fourth, the surge pricing. Surge pricing is the Grab innovation, where the price varies according to demand. When there is a shortage of Grab vehicles to answer calls (a "surge" in demand) the price rises. The higher price solves the problem through its effect on both drivers and customer behaviour:

Third, whereas the online taxi in several jurisdictions had been categorized as a Transport Network Companies, thus the operation of Grab and Go-Car must also subject to the State and Provincial Regulation. These State and Provincial Regulations must be the product of institutional coordination and synergy between the affected stakeholders, such as between the Ministry of Transportation (KEMENHUB), the Indonesian Commission for Business Competition Supervision (KPPU) and the Provincial Government (PEMDA). This Regulation would not only provide the safety, reliable and affordable public transportation, but this Regulation must also be able to create a fair and workable competition between the online taxis (internal competition) and competition of online taxis with the conventional taxis (external competition).

Fourth, taking into the applied business model and Algorithm operated by the online taxis, it had been argued and alleged that Grab and Go-Car employ a 'Hub and Spoke cartel' in their fare prices. Such a disguised configuration of collusions involves the online taxi operator as the Hub and the driving partners as the Spokes. Although, the online taxis operator does not active in the cartelized market, its role as the intermediary is a antitrust violation and thus could be subject to penalties by the Indonesian Competition Authority (KPPU). In the European Competition and German Cartel laws, such a 'Hub and Spoke' cartels are punishable and subject financial and penal sanctions. Thus, the collusive agreement at hand will be directly becomes a nullity. Nevertheless, in the Indonesian Competition Law Number 5/1999 concerning cartels prohibition, also in the ongoing Amendment of the Law there is no definitive provisions regulating a 'Hub and Spoke' cartels.

Fifth, in order to create certainty of law in the online taxi businesses in Indonesia there must be a common Regulation between the affected Ministries, KPPU and the other stakeholders, which replace the Permen No. 108/2017. This common Regulation must be the result of coordinated and synergized exchanges of opinions between the affected Ministries, KPPU and other stakeholders in order to create the safety, reliable and affordable public transportation as well as a fair and workable competition within the online taxi market. Furthermore, this Regulation must ensure the fostering of technological and business innovations for the online taxis operators to develop and expand their businesses in the Indonesian digital economy.

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Special Lease Transportation Company is a legal entity or micro business actor or small business actor that provides Special Lease Transportation services (Article 1 number 8 PM No. 118 of 2018)

Special Lease Transportation Tariff is the applicable tariff paid by the User for the Special Lease Transport service provider based on an agreement through the application of information technology based on the upper limit and lower limit rates (Article 1 Number 15 PM No. 118 of 2018)